

What is claimed is:

1. A method to handle power failures during the performance of a task by a peripheral device, wherein said peripheral device receives electrical power with an “on” state and an “off” state from a power supply, and said peripheral device is part of a data processing system which also contains a non-volatile memory, said method comprising:

monitoring said power supply to determine whether said electrical power is changing from said “on” state to said “off” state, or changing from said “off” state to said “on” state;

if said electrical power is changing from said “on” state to said “off” state, examining a first task queue for said peripheral device to find at least one task for said peripheral device in said first task queue;

calculating the amount of electrical energy required for said at least one task;

performing said at least one task if sufficient electrical energy remains available to said peripheral device to complete said at least one task; and

storing data describing said task in a second task queue in said non-volatile memory if insufficient electrical energy remains available to said peripheral device to complete said at least one task.

2. The method of claim 1, further comprising:

searching in said second task queue in said non-volatile memory for at least one stored task if said electrical power is changing from said “off” state to said “on” state; and

if said at least one stored task is in said second task queue,

starting said peripheral device, retrieving said at least one stored task from said second task queue, and

performing said at least one stored task with said peripheral device.

3. The method of claim 2, further comprising starting said peripheral device if there is no stored task in said second task queue.

4. The method of claim 2, wherein said first task queue and said second task queue are one task queue in said non-volatile memory.

1 5. The method of claim 1, wherein said non-volatile memory includes a magnetic  
2 memory.

1 6. The method of claim 1, wherein said peripheral device is a printer.

1 7. The method of claim 1, wherein said peripheral device is an input/output (I/O) device.

1 8. A method to handle power failures during the performance of a task by a peripheral  
2 device, wherein said peripheral device receives electrical power with an “on” state and an  
3 “off” state from a power supply, and said peripheral device is part of a data processing system  
4 which also contains a non-volatile memory, said method comprising:

5 monitoring said power supply to determine whether said electrical power is changing  
6 from said “on” state to said “off” state, or changing from said “off” state to said “on” state;

7 if said electrical power is changing from said “on” state to said “off” state,

8 examining a first task queue for said peripheral device to find at least one task  
9 for said peripheral device in said first task queue,

10 calculating the amount of electrical energy required for said at least one task,

11 performing said at least one task if sufficient electrical energy remains in said  
12 peripheral device to complete said at least one task, and

13 storing data describing said task in a second task queue in said non-volatile  
14 memory if insufficient electrical energy remains in the peripheral device to complete  
15 said at least one task;

16 if said electrical power is changing from said “off” state to said “on” state,

17 searching in said second task queue in said non-volatile memory for at least  
18 one stored task,

19 starting said peripheral device, retrieving said at least one stored task from said  
20 second task queue, if said at least one stored task is in said second task queue, and  
21 performing said at least one stored task with said peripheral device.

1 9. The method of claim 8, wherein said first task queue and said second task queue are  
2 one task queue in said non-volatile memory.

1 10. A data processing system that handles power failures when receiving electrical power  
2 with an “on” state and an “off” state from a power supply, comprising:

3 an electrical detection circuit for monitoring said power supply to determine whether  
4 said electrical power is changing from said “on” state to said “off” state, or changing from  
5 said “off” state to said “on” state;

6 a peripheral device, including a processor to calculate the amount of electrical energy  
7 required for said peripheral device to perform a task;

8 a first task queue for said peripheral device that can be read to find at least one task  
9 for said peripheral device if said electrical power is changing from said “on” state to said  
10 “off” state; and

11 a non-volatile memory, including a second task queue for said peripheral device that  
12 can store data describing said task if insufficient electrical energy remains available to said  
13 peripheral device to complete said at least one task.

1 11. The data processing system of claim 10, further comprising:

2 a read/write bus for reading a plurality of entries in said second task queue for at least  
3 one stored task, if said electrical power is changing from said “off” state to said “on” state;

4 a circuit to start said peripheral device and retrieve said at least one stored task from  
5 said second task queue, if said at least one stored task is in said second task queue; and

6 a task scheduler to initiate the performance of said at least one stored task with said  
7 peripheral device.

1 12. The data processing system of claim 10, further comprising an uninterruptible power  
2 supply externally connected to said peripheral device.

1 13. The data processing system of claim 12, wherein said uninterruptible power supply is  
2 located inside said peripheral device.

1 14. The data processing system of claim 10, wherein said electrical detection circuit is  
2 inside an uninterruptible power supply.

- 1 15. The data processing system of claim 10, wherein a processor to calculate said amount  
2 of energy required to perform said task is located outside said peripheral device.
- 1 16. The data processing system of claim 10, wherein said non-volatile memory includes a  
2 magnetic memory.
- 1 17. A data processing system, comprising an uninterruptible power supply, a non-volatile  
2 memory, and a peripheral device, wherein said peripheral device is connected to a circuit to  
3 detect a change in electrical power supplied to said uninterruptible power supply.
- 1 18. The data processing system of claim 17, further comprising a task queue in said non-  
2 volatile memory that contains one or more tasks for said peripheral device.
- 1 19. The data processing system of claim 17, further comprising a processor to calculate  
2 the amount of energy required by said peripheral device to perform a scheduled task in said  
3 task queue in said non-volatile memory.
- 1 20. The data processing system of claim 19, wherein said circuit to detect a change in  
2 electrical power supplied to said uninterruptible power supply and said non-volatile memory  
3 are inside said peripheral device.